## AMENDMENT TO THE CLAIMS

Claim 1 (canceled)

Claim 2 (currently amended): A method for interlacing a progressive video sequence to produce an interlaced video sequence of alternating odd and even fields, the method comprising:

obtaining at least two consecutive frames of a progressive scan video sequence;

segmenting at least one of said frames into constituent objects;

estimating a motion of said constituent objects between ~~the at least two frames~~ a first frame and a second frame of said frames;

using the estimated motion for each object between the first and second frames to ~~interpolate the motion of each object between the first frame and~~ determine an interpolated position for each object in an intermediate frame;

using the interpolated ~~motion~~ position for each object to construct the intermediate frame;

extracting a first alternating field from the first frame; and

extracting a second alternating field from the intermediate frame,

wherein the first and second alternating fields comprise the odd and even fields of the interlaced video sequence.

Claim 3 (canceled)

Claim 4 (previously presented): The method of claim 2, wherein the odd field contains image data of odd numbered rows of a frame, and the even field contains image data of even numbered rows of a frame.

Claim 5 (previously presented): The method of claim 2, wherein the first and second fields comprise fields of even and odd columns the odd field contains image data of odd numbered columns of a frame, and the even field contains image data of even numbered columns of a frame.

2

Claim 6 (original): The method of claim 2, further comprising:

filling areas of the intermediate frame that are exposed by the interpolated motion for each object.

Claim 7 (original): The method of claim 6, wherein if the exposed area in the intermediate frame corresponds to an exposed area in the next frame, then data from the next frame is used to fill the exposed area in the intermediate frame.

Claim 8 (original): The method of claim 7, wherein if the exposed area in the intermediate frame does not correspond to an exposed area in the next frame, then data from the first frame is used to fill the exposed area in the intermediate frame.

Claim 9 (original): The method of claim 6, wherein color data for neighboring objects is used to fill the exposed area in the intermediate frame.

Claim 10 (original): The method of claim 2, further comprising calculating and using an average of the estimated motion for each object between frames in constructing the intermediate frame.

Claim 11 (original): The method of claim 2, further comprising comparing the estimated motion for a first object with estimated motions for neighboring objects to determine a consistency of the estimated motions.

Claim 12 (original): The method of claim 2, further comprising comparing the estimated motion for a set of pixels with estimated motions for the set of pixels in a nearby frame to determine a consistency of the estimated motions.

Claim 13-17 (canceled)